REMARKS

The Preliminary Amendment of March 5, 2008 cancelled claims 1-62 and added claims 63-77. Claim 66 is cancelled. Claim 78 is added herein. Accordingly, claims 63-65 and 67-78 are at issue.

Claim 72 is objected to because, as filed, claim 72 stated that it is dependent upon claim 72. Claim 72 has been amended to depend from independent claim 71.

Claim 66 stands rejected under 35 U.S.C. § 112 ¶2 as being indefinite. Claim 66 is cancelled herein.

Claims 63, 64, and 67-75 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Pub. No. 2004/0019353 to Freid et al. Claim 65 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Freid et al. in view of U.S. Patent No. 6,402,206 to Simmons et al. Claims 76 and 77 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Freid et al. in view of U.S. Patent No. 6,966,735 to Yamazaki.

The rejection, as it may apply to the claims presented herein, is respectfully traversed.

Independent claim 63 is directed to a bone plate having a plurality of bores that are each configured to receive a bone anchor. Claim 63 is amended to specify that one of the bores has a pair of flat portions that extend substantially parallel to one another and are spaced by a predetermined fixed distance. An anchor lock collar member is rotatably received in the one bore and includes an upper portion and a lower portion, the lower portion having a split-ring construction with facing circumferential ends that are spaced apart from one another. Claim 63 is further amended to specify that the anchor lock lower portion has a larger dimension and a smaller dimension having respective axes that extend through a center of the anchor lock collar member substantially orthogonal to each other. The larger dimension of the anchor lock lower portion is greater than the predetermined fixed distance between the bore flat portions, while the smaller dimension is less than said distance. Claim 63 calls for cooperating inner and outer surfaces of the one bore and the anchor lock lower portion, respectively, which cause the facing ends of the anchor lock lower portion to shift toward each other with approximately ninety

degrees of rotation of the anchor lock collar member. The anchor lock collar member is configured to be rotated from an open, bone anchor receiving configuration with its larger dimension axis oriented substantially parallel to the bore flat portions to a clamped, bone anchor locking configuration with its larger dimension axis oriented substantially perpendicular to the bore flat portions. None of the relied upon art, either alone or in combination, discloses or suggests cooperating inner and outer surfaces of a bore and an anchor lock collar member lower portion which cause facing ends of the split-ring anchor lock collar member to shift toward each other with approximately ninety degrees of rotation of the anchor lock collar member. The relied upon art further fails to disclose or suggest an anchor lock collar member having a lower portion with larger and smaller dimensions and respective axes that are substantially orthogonal to each other, the larger dimension being greater than a predetermined fixed distance between a pair of bore flat portions and the smaller dimension being smaller than the distance between the bore flat portions, as specified in amended claim 63.

More particularly, Freid et al. disclose a retainer 46 that is positioned within an opening 40 of a spinal compression plate 30 to resist back-out of a fastener 182 from the opening 40. (*See* FIG. 22; ¶¶ [0069], [0072].) The retainer 46 includes a gap 214 to permit deflection of the retainer 46 so that the retainer 46 may be inserted into the opening 40. (*See* FIG. 25; ¶ [0129].) To retain the fastener 182 within the opening 40, the retainer 46 has projections 50 that deflect outward as the head of fastener 182 is inserted into the retainer 46 and contract inward once a portion of the fastener head passes beyond the projections 50. (¶ [0073].) By contrast, claim 63 requires facing ends of the anchor lock lower portion to shift toward each other with approximately ninety degrees of rotation of the anchor lock. The use of projections 50 to resist back-out provides a rotation-independent approach to retaining the fastener 182 within the opening 40. Stated differently, rotating the retainer 46 of Freid et al. has no effect on the engagement of the projections 50 on the fastener 182. This operation stands in stark contrast to claim 63, which recites cooperating inner and outer surfaces of a bore and the anchor lock lower portion that cause facing ends of the anchor lock lower portion to shift toward each other with

rotation of the anchor lock. Thus, Freid et al. teach a very different manner of retaining the fastener 182 than the anchor lock collar member of claim 63.

Further, the retainer 46 of Freid et al. plainly lacks a lower portion having larger and smaller dimensions and respective axes that are substantially orthogonal to each other, as recited by claim 63. Instead, Freid et al. disclose that the retainer 46 is "in the form of a ring" and is "substantially circular to surround at least a portion of a fastener head." (¶ [0128].) Moreover, the retainer 46 can freely rotate in the opening 40, in contrast to the anchor lock collar member of amended claim 63 that has its larger dimension sized to be greater than the distance across the parallel bore flat portions. (*See* ¶ [0070].) Accordingly, it is believed claim 63, and claims 64, 65, and 67-70 which depend cognately therefrom, are allowable over the relied-upon art.

In addition, the dependent claims recite additional limitations which further delineate over the relied-upon art. For example, with respect to claim 65, the applied references fail to disclose or suggest a transition between anchor lock camming surfaces camming against bore flat portions and anchor lock substantially flat surfaces abutting the bore flat portions. Instead, Freid et al. disclose a circular retainer 46 that can freely rotate within opening 40. The additional disclosure of Simmons et al. is limited to a split ring 42 having an outer profile that is curved to fit within an internal annular recess 50 of the cap nut 52. (*See* Col. 6, lines 5-8.) Thus, the combined teachings of Freid et al. and Simmons et al. fail to disclose or suggest an anchor lock collar member having substantially flat surfaces and adjacent camming surfaces which provide the transition of claim 65. For at least these reasons, it is believed claim 65 is further distinguishable from the relied-upon art.

Claim 71 recites a bone plate having a dynamized bore with an elongate configuration that allows a bone screw extending therethrough to shift relative to the bone plate. Claim 71 is amended to further specify that the dynamized bore has a pair of opposed flat portions which extend along the length of the bore. A screw lock member received in the dynamized bore is configured for being rotated between a screw receiving unlocked configuration and a screw locking configuration. Claim 71 is further amended to specify that the screw lock member has a pair of diametrically opposed outer flats which face radially outward. The screw lock member

has a substantially smooth inner surface with an inner diameter sized in clearance with the bone screw when the screw lock member is in the screw receiving unlocked configuration. Rotation of the screw lock member to the screw locking configuration brings the flats into confronting relation with the opposed bore flat portions which substantially uniformly reduces the inner diameter in size so that the smooth inner surface provides a uniform clamping force about the bone screw. Claim 71 is amended to specify that the screw lock member flats are configured to slide along the bore flat portions to permit relative translation of the bone screw and the screw lock member in the dynamized bore while keeping the bone screw from backing out therefrom. The applied references, either alone or in combination, fail to disclose or suggest a screw lock member having a pair of diametrically opposed outer flats which face radially outward, wherein rotation of the screw lock member to a screw locking configuration brings the flats into confronting relation with opposed bore flat portions. Further, the applied references fail to disclose or suggest flats of a screw lock member that are configured to slide along opposed bore flat portions to permit relative translation of the bone screw and the screw lock member in a dynamized bore, as recited by claim 71.

In the Action, Freid et al. is relied upon to disclose an "anchor lock lower portion [having] two substantially flat surfaces," as represented by an outer surface 210 of the retainer 46. (Office Action, pages 4 and 8.) Applicants respectfully assert that the shape of the outer surface 210 is clearly not "flat." This position is supported by Freid et al.'s description of the shape of the retainer 46 as "substantially circular." (*See* ¶ [0128].) Therefore, it is respectfully asserted that outer surface 210 lacks a pair of diametrically opposed flats of the screw lock member which face radially outward therefrom, as recited by amended claim 71.

Another shortcoming of Freid et al. is that rotation of the retainer 46 does not affect engagement of the retainer 46 to the fastener 182. The Office Action interprets Freid et al. to disclose an inner diameter of retainer 46 that is:

> [S]ubstantially uniformly reduced in size when the screw lock member is in the screw locking configuration (with <u>projections 50</u> contracted after insertion of fastener, paragraph 0073).

(Office Action, page 5 (emphasis added).) As discussed above, the retainer 46 has projections 50 that deflect outward as the head of fastener 182 is inserted into the retainer 46 and contract inward once a portion of the fastener head passes beyond the projections 50. (¶ [0073].) By contrast, amended claim 71 requires that rotation of the screw lock member to a screw locking configuration brings flats of the screw lock member into confronting relation with a pair of opposed bore flat portions. This substantially uniformly reduces the inner diameter of a smooth inner surface of the screw lock member such that the smooth inner surface provides a uniform clamping force about the bone screw. Not only does the retainer 46 of Freid et al. lack flats, but Freid et al. fail to disclose rotating the retainer 46 to change its inner diameter.

Freid et al. further fail to disclose or suggest flats of a screw lock member that are configured to slide along opposed bore flat portions of a dynamized bore, as recited by claim 71. At most, Freid et al. disclose that the retainer 46 can freely rotate and slide within an opening 100. (*See* Fig. 20; ¶ [0096].) Freid et al. also disclose an embodiment where serrations 106, 108 restrict longitudinal movement of the retainer 46 in opening 100. (FIG. 9; ¶ [0129].) Taken together, these embodiments provide movement of the retainer 46 without the use of flat portions of the screw lock member sliding along opposed bore flat portions, as required by claim 71. Accordingly, it is believed claim 71, and claims 72-74 and 78 which depend cognately therefrom, are allowable over the relied-upon art.

Claim 75 is directed to a bone plate system having a locking collar configured for being received in a bore of the bone plate. Claim 75 is amended to specify that the locking collar has a step portion with thicker and thinner portions, and an upwardly facing cam surface extending between the thicker and thinner portions of the locking collar step portion. The cam surface is configured for camming against an upper surface of a bore channel so that rotation of the locking collar toward a locked configuration brings the locking collar cam surface into engagement with the channel upper surface. This causes a tight wedge fit of the step portion thicker portion in the channel to avoid reverse rotation back toward an unlocked configuration of the collar in the bore. None of the relied upon art, either alone or in combination, discloses or suggests a bone plate system as specified in claim 75.

In the Action, the retainer outer projections 224 of Freid et al. are interpreted as an "upwardly facing cam surface," and asserts that the projections 224 are configured to cam against a downward-facing portion of recess 48. (Office Action, page 8.) However, the disclosure of Freid et al. relating to projections 224 is limited to the following:

> FIG. 28 depicts retainer 46 as a ring with projections 50 and outer projections 224. In some embodiments, one or more outer projections 224 of retainer 46 may include overhang 226. <u>Overhang 226</u> of outer projections 224 may engage a recess in an opening in a spinal compression plate. Valleys 228 between projections 50 and outer projections 224 may allow deflection of the projections and the outer projections.

(Freid et al., ¶ [0132] (emphasis added).) Even if the Office Action intended to refer to overhang 226, Freid et al. fail to disclose or suggest an upwardly facing cam surface extending between thicker and thinner portions of the locking collar step portion that is configured for camming against a channel upper surface, as recited by amended claim 75. Accordingly, it is believed claim 75, and claims 76 and 77 dependent therefrom, are allowable over the relied-upon art.

Claims 76 and 77 are believed to be allowable over the combination of Freid et al. and Yamazaki for the same reasons as discussed with respect to Freid above, as claims 76 and 77 depend from claim 75. Applicants respectfully assert that there is no motivation to combine Freid et al. with Yamazaki. Regarding the combination of Freid et al. with Yamazaki, it is asserted in the Action that:

> It would have been obvious to one skilled in the art at the time the invention was made to modify the cam surface of the locking collar and the downward facing surface of recess 48 disclosed by Freid et al. to have a ramp and a projection for mating with a matching downward facing surface as taught by Yamazaki for the purpose of achieving a <u>positive non-loosening effect</u> . . . .

(Office Action, page 11 (emphasis added).) However, Freid et al. disclose an approach to resisting backout of the fastener 182 from the opening 40 that is independent of the rotation of the retainer 46. Specifically, projections 50 of the retainer 46 have fingers 202 that overlap an engagement section 192 of the fastener 182 to inhibit backout of the fastener 182. (*See* FIGS.

23-25; ¶¶ [0122]; [0130].) Adding features from Yamazaki to the retainer 46 to somehow limit rotation of the retainer 46 would not affect the operation of fingers 202 in resisting backout of fastener 182. Thus, applicants respectfully assert that there is no motivation to combine the Freid et al. and Yamazaki references.

New claim 78 depends from independent claim 71 and further defines the screw lock member. Specifically, claim 78 recites outer curved surfaces of the screw lock member and junctures between the curved surfaces and the flats. The junctures are diametrically opposed across the screw lock member and are separated by a distance that is greater than the distance between the diametrically opposed flats. In this manner, once the screw lock member is in the locked configuration and the flats are in confronting relation with the bore flat portions, the junctures will resist rotation of the screw lock member toward the unlocked configuration. None of the relied upon art, either alone or in combination, discloses or suggests a screw lock member as specified in claim 78.

Based on the foregoing, reconsideration and allowance of claims 63-78 are respectfully requested. The Commissioner is hereby authorized to charge any additional fees which may be required in this matter, or to credit any overpayment, to Deposit Account No. 06-1135.

Respectfully submitted,

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Date: July 15, 2009

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